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Consumer Motivation to Recycle When Recycling is Mandatory: Two Exploratory Studies*

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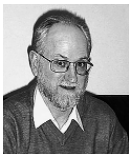

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ABSTRACT

Household recycling is conceptualized as a social dilemma in which households have a choice between cooperative and defective options. Promoting cooperative choice in the recycling dilemma has emerged as an important issue for social marketing in recent years. Most of the available insights that could guide policy makers in designing appropriate social marketing strategies are based on research conducted in the context of voluntary recycling programs. Increasingly social marketing action takes the form of mandatory programs, albeit suffering from a lack of transparency and imperfect coercion. On the basis of two explorative studies into the underlying values and consumer experiences with mandatory programs, we argue that the primary intrinsic motivational basis for cooperation includes not only environmental but also 'civic duty' related values. We describe how these values drive both individual experiences of recycling behavior and the reactions to non-cooperative behavior by others. Implications for public policy and social marketing are discussed.

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I. INTRODUCTION

One of the implications of sustainable economic development is that a community should control its production and disposal of waste. The decreasing spare capacity of landfills and incinerators throughout the industrialized world, especially in densely populated Western Europe, have made this task increasingly difficult. One way to realize efficient control is to bring waste back into the economic circuit by recycling. Our work concentrates on the problem of household waste recycling, which has recently emerged as one of the key areas of debate in the public policy arena. Recycling requires the separation of waste fractions, which can be most efficiently done at the source, by individuals and households. Researchers in consumer behavior and social marketing have therefore paid increasing attention to 'disposal behaviors' as the final stage in the consumption cycle (Antonides and van Raaij (1998)).

From a researcher's perspective, recycling constitutes a social dilemma (Rothschild (1979); Wiener and Doescher (1991)). Consumers can choose between defective behavior that minimizes personal costs (inappropriate sorting, burning waste, littering) and cooperative behavior that will maximize the social pay-off, but only if a large majority of the population cooperates (Dawes (1980)). Consideration of mere self-interest would always dictate the defective choice. The social marketing task of promoting cooperation in the recycling dilemma is made even more difficult as the social pay-off (a cleaner environment, a better world …) typically does not accrue to the recycling individuals, but to subsequent generations. Two strategic routes to encourage cooperation are available to social marketers: an 'attitudinal route', which induces individuals to cooperate for the sake of cooperation, and a 'structural route', which seeks to change the properties of the decision situation such that it is no longer a social dilemma (Messick and Brewer (1983); Wiener and Doescher (1991)). Structural solutions change the pay-off structure such that cooperation is the alternative with the lowest personal cost.

In recycling dilemmas, the preferred social marketing strategy has long been attitudinal. Until a few years ago, most recycling programs in Europe and elsewhere were voluntary in nature. Local governments created the opportunity to participate, without controlling or rewarding actual compliance. Interventions have traditionally taken

the form of informational and motivational campaigns, starting from the assumption that *personal goals* to participate can be created or facilitated. Most of the reported research on recycling behavior has been conducted as an evaluation of such voluntary programs. These studies, indeed, find that the extent and quality of participation can be predicted based on individual attitudes towards recycling, which in turn are under control of environmental values as an personal driving force (for reviews, see Thögersen (1996a); Smeesters, Warlop and Vanden Abeele (1998)).

Due to the increasing strain on available waste processing capacity, governments are increasingly switching to structural strategies, by setting up mandatory programs. Local governments mandate the use of particular waste recipients for separated waste fractions, the prices of which are set to cover the processing or dumping costs for each fraction. Compliance is monitored, and infractions are fined or prosecuted. Mandatory programs make minimal assumptions about personal motivation. They are set up such that compliance is the most cost-effective behavioral strategy, if one plays by the rules. The programs are believed to ensure that more people will participate to a larger extent, even if they are not intrinsically motivated.

Few prior studies have examined programs of a more mandatory nature (see Grunert (1996); Thögersen (1996b) for exceptions). The move to structural social marketing strategies raises a number of issues that have not been addressed. First, none of these systems is foolproof. Defective behavior is possible to the extent that a household's actions are not completely transparent, and control is imperfect. Also, the system itself with its high prices and fines may lead to resentment. People who observe successful defection in peers and neighbors may be tempted to follow suit. Small-group social dilemma research has suggested that cooperative individuals confronted with defection will tend to follow suit. Second, recycling research has equated the cooperative orientation, as measured and observed in most social dilemma research (Van Lange, Otten, De Bruin, and Joireman (1997)), primarily with environmental values. It is unclear whether these values will still dominate behavior in the context of mandatory programs. If it is still important to activate intrinsic motivation in mandatory programs (Frey (1993)), which values and beliefs need to be addressed? Finally, if the driving values can be identified, how can value-

consistent (and socially desirable) behavior be promoted by appropriate social marketing action?

These questions constitute an extensive research program. In this paper we report the results of our initial exploration of household recycling experiences in the context of mandatory sorting programs. We report two qualitative studies. The first study uses an interpretative methodology, and investigates individual adaptation to mandatory recycling programs. The second study uses laddering (Reynolds and Gutman (1988)) to uncover the underlying motivational (value) structure of compliant and defective behavior. Below, we will first report both studies, then discuss their implications for public policy and for follow-up research.

II. STUDY 1: CONSTRUCTING AN INTERPRETATIVE MODEL OF THE RECYCLING EXPERIENCE

At the most descriptive level, our objective is to construct an inventory of the problems experienced by individual consumers confronted with the obligation to sort their household waste. Analysis and interpretation of these narrative data result in an interpretative model of the sorting experience, and of its antecedents and consequences *as experienced by the respondents*. We will continue to adapt our interpretations as we add more data and sharpen our insights.

A. *Data collection*

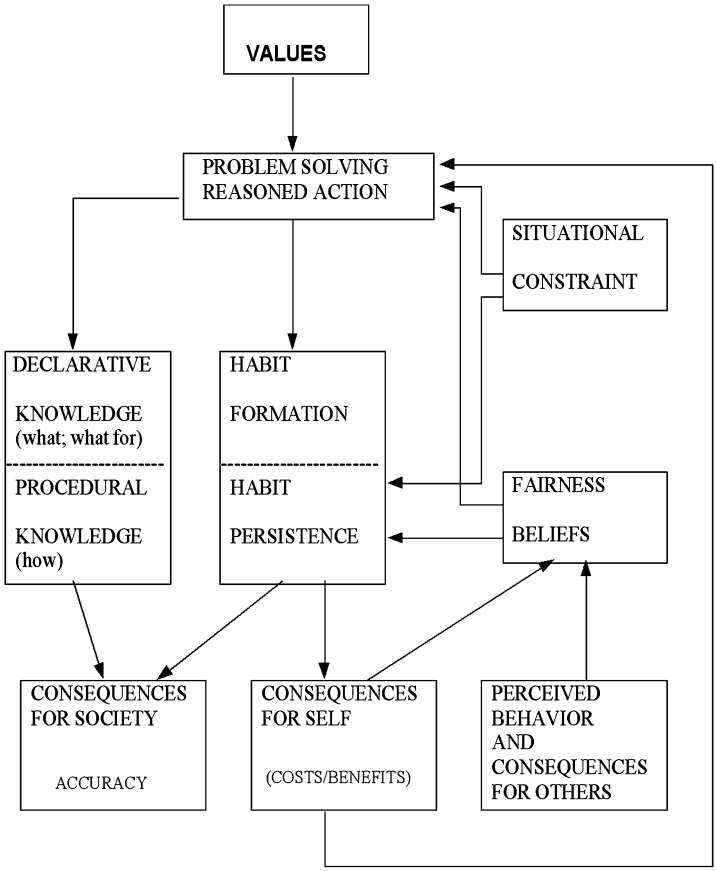
Narrative data were gathered from 71 respondents. Thirty-six took part in one of six focus groups, conducted in different rural and suburban regions of Flanders. We added 35 individual depth-interviews, conducted in urban and suburban regions. Respondents' ages ranged between 25 and 70, with a majority between 40 and 60. Most of the respondents were members of local socio-cultural organizations. When probed during the interviews, none of the participants claimed membership of environmental organizations. The focus groups lasted about 90 minutes; the individual depth interviews ranged in duration between 30 and 90 minutes. All interviews were conducted in Dutch. They have been recorded on tape and completely transcribed.

B. *Findings and conceptual model*

We based our analysis on grounded theory (Strauss and Corbin (1990)). A grounded theory is an inductive substantive theory about a phenomenon, which is discovered, developed and verified through systematic collection and analysis of the data. Conceptual categories were extracted, and relationships between categories explored using the NUD-IST software (QSR (1997)). The resulting model is presented in Figure 1. The model centers on the formation and persistence of sorting habits and its antecedents. Below we discuss each of these interpretative categories.

FIGURE 1

Conceptual model of recycling experience



1. Sorting habit

At the time of the interviews, all respondents had lived with a mandatory sorting program for at least six months, some for more than three years. Most salient in their narratives was the habitual nature of their behavior. Most households had developed stable behavioral routines to accomplish the tasks involved in gathering, sorting, and disposing of waste materials (all labeled 'recycling' in the remainder of this paper). They considered their routines optimal, given the constraints imposed by the municipal requirements and by their living environment. Central in our interpretation is therefore the construct of *habit*. When people are confronted with new situations and new tasks, problem solving is very important. Early during a recycling program, consumers have to consider the alternatives for discarding garbage, and evaluate the *consequences for the self* in terms of costs and benefits (time, money, effort, and social approval…). They can follow the municipal sorting instructions, they can sort inaccurately and mix different materials; they can even dump or burn their garbage… They will make the choice that seems to be the most justified, either to oneself or to others who will evaluate their choices. At that time, they are *forming a recycling habit*.

Once habitualized, the *persistence* of sorting and recycling activities does not require much conscious thought. Routinization, however, is never absolute. First, in case of non-daily recycling activities (e.g. larger items that people do not have to discard very often) ad-hoc solutions needs to be found; this is true for all new recycling tasks (e.g. when municipal rules for sorting a specific material have changed). These decisions continue to involve conscious thought and the consideration of at least one alternative to the selected course of action ('planned behavior'). Second, changing program characteristics can induce new problem-solving behavior. Municipal recycling rules can change, and mandate a change in recycling routines. Third, habits can also be interrupted when individuals witness alternatives to their own routines. For example, a neighbor who does not recycle, but burns garbage in his backyard can instigate an observer to re-evaluate his/her own behavior. Such experienced "interrupts" (Bettman (1979)) trigger reconsideration of costs and benefits, and work as a feedback mechanism to the recycling attitude and intention (Pieters (1989)). This learning process may strengthen or change attitudes and intentions and, consequently, break down the recycling habit.

2. Values

The evaluation of the costs and benefits that drive habit formation is based on a person's *values*. In most prior research, the guiding values were *assumed* to be environmental (see Smeesters et al. (1998)). Those who did study the recycling value structure empirically, indeed found that values related to the environment (e.g., sustaining life, providing for future generations) were most important (e.g., Dunlap, Grieneeks and Rokeach (1983); Oskamp et al. (1991)). Secondary motives typically are 'frugality in consumption' – by consuming fewer packaged products — (DeYoung (1985-1986)), and 'promoting health' – a cleaner personal environment — (Bagozzi and Dabholkar (1994)). It is, however, important to know that these studies have been conducted in a context of voluntary recycling programs. Consideration of additional values may be necessary to explain the compliance by participants in mandatory programs.

Unlike most of the above-mentioned studies, we did not present potential values to our respondents but merely asked them to reflect on their personal reasons for recycling. Only a minority of respondents, especially in urban areas, did not spontaneously mention values at all. Their justifications remained at the level of 'avoiding fines'. Most respondents, however, referred to 'doing one's duty' as the dominant motivational 'force' underlying their recycling behavior. They found it important to comply with the sorting and recycling rule and regulations because that is part of "being a good citizen". The dominant underlying value is therefore not different from that for other civic behaviors like paying taxes or obeying traffic rules. Purely environmental values were only secondary, and mentioned by a minority of respondents. The *mandatory* nature of the programs we are investigating seems, indeed, to call for different value orientations.

3. Perceived constraints

We found evidence for habitual recycling, driven predominantly by 'civic duty' considerations. We argue that most of the consumers are intrinsically motivated to persist in socially appropriate sorting behavior. However, in some situations people might deviate from what they are intrinsically motivated to. Although most of our respondents perceived themselves as complying with the rules, they all were able to reflect on past episodes of defection. These narratives reflect the attributions consumers make for their own violations of the rules. Attribu-

tions are typically external; circumstances are held responsible, rather than the self (Pieters, Bijmolt, van Raaij, and de Kruijk (1998)). Whether or not these attributions are the true reasons has no implications for the validity of our model. We argue that perceived constraints are 'real' in the sense that they are reasons why people might deviate from their recycling routines, which may lead to the formation of new, less desirable habits. We do not exclude that additional, less salient constraints might also operate on the respondents' behavior. We found three important categories of perceived constraints: knowledge gaps, situational constraints and unfairness beliefs.

a. Self-perception of knowledge gaps

Perceived knowledge constraints can be divided in two classes. *Procedural knowledge* is knowledge about 'how to execute the sorting task'. Knowledge gaps that are not salient to the individual may lead to persistent sorting failures, especially because participants often do not know and never learn that they are making mistakes (Pieters (1989)). Our data reveal that lack of task knowledge is used as a justification for defective episodes. Respondents often justified violations of the rules by arguing that they did not know what exactly do to with a particular garbage item.

Declarative knowledge refers to knowledge about the societal implications of (not) recycling, as well as about how the recycling process proceeds once the garbage has been collected. We consider this a constraint because people want to know if and how they contribute to a desirable end-goal. Many respondents report a sense of contributing to a socially desirable goal, but they lack insight into how this happens. This may also explain why environmental values are rarely mentioned as a dominant motivator. "Duty" related values can be used as a guiding force even if the actor does not understand the scope of the social dilemma.

b. Situational constraints

Situational constraints are due to the residential status of respondents or to program characteristics. Residential constraints were acute for respondents living in small apartments, often in inner-city high-rises; before the institution of the mandatory program, the latter had been able to use collective disposal containers, conveniently located near their dwellings. The lack of space and the interference of garbage

storage with other household activities compounded the switch to individual responsibility for sorting and storing waste. These respondents were less likely to report habit formation and had the lowest levels of intrinsic motivation. For most others however, *program-related constraints* appeared to be more salient. Municipal programs vary in the frequency of garbage collection, the proximity of glass containers, the number of waste fractions to be separated, etc… High levels of situational constraint interfere with the development of sorting habits, especially when these constraints are not stable over time. Consumers experience more frequent interrupts, resulting in slower habit formation and more threats to habit persistence.

c. Unfairness beliefs

Consumers compare self-experienced costs and benefits of recycling with those inferred for other parties. Our respondents justified non-compliance by referring to three different sources of unfairness.

First, *unfairness beliefs about community differences* were very salient. Our respondents are aware of the lack of standardization between different municipal programs, and actively compare regulations between municipalities. These inter-community differences are perceived to be unfair: consumers tend to concentrate on aspects of the comparison showing them to be worse off. This unfairness perception can cause feelings of intolerance and can induce defection (e.g. discarding waste in adjacent municipalities). Equally prominent in virtually all narratives are *unfairness beliefs about manufacturers*. Government is believed to put most of the burden of recycling on the consumer, not on the manufacturers of consumer products. Respondents easily attributed a large share of the responsibility for using redundant packaging and generating too much waste to manufacturers. Third, many respondents reported instances of neighbors or others "beating the system", by burning waste or littering. Such *free riding* is considered unfair. Consumers ask for more controls and for more severe punishment of littering malpractice.

III. STUDY 2: A MEANS-END CHAIN EXPLORATION OF RECYCLING MOTIVATION

Unlike in prior studies, our interviews revealed that the intrinsic motivation to comply with recycling programs is often driven by

'good civic' values rather than by environmental values. Many respondents did not even mention the environment while explaining why they found it important to participate in recycling programs. The importance for the development of sensitization campaigns of knowing the underlying value structure (Reynolds and Gutman (1988)) motivated our second study.

We used the means-end chain framework (Reynolds and Gutman (1988)) to investigate which personal values constitute the motivational basis for sorting behavior, and how they are linked to these behaviors. Means-end chains are organized structures of meanings that connect actual behaviors to an individual's personal values. They describe a hierarchy of interconnected motivations, with increasing level of abstraction, each constituting the means to reach higher level goals. Values are at the highest level of abstraction and linked to observable behaviors through more direct personal consequences of the behavior.

A common technique to reveal means-end structures is 'laddering'. This technique refers to an in-depth, one-on-one interview used to develop an understanding of how individuals translate the attributes of behaviors into meaningful consequences and personal values. A laddering interview starts from an inventory of elicited recycling behaviors and behavioral attributes. The researcher encourages the respondent to think about the reasons why each of these behaviors is important for him or her. The procedure is repeated for the generated reasons, until the respondent indicates there is no deeper or higher reason possible. We used this laddering technique to provide a more complete picture of the motivational antecedents of the behavior.

Compared to the depth interviews and focus groups in study 1, the laddering procedure in study 2 sacrifices spontaneity in return for more reflection. Respondents in a laddering study are likely to uncover a broader set of 'deep' motivations to participate in recycling. It has been argued (Cohen and Warlop (2001)) that because of this heightened reflection, means-end chains may be less suitable for understanding the actual cognitive activity preceding behavioral choice. Our means-and chain analysis should therefore be considered complementary to the interpretative analysis of spontaneous narratives, by indicating the potential but not necessarily realized motivational basis for recycling behavior in mandatory programs.

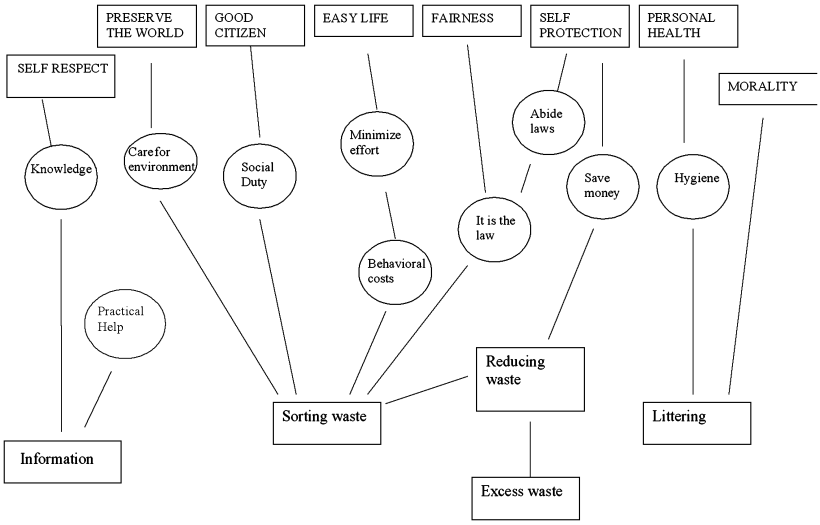
A. *Data Collection and Analysis*

Thirty respondents participated in a structured laddering interview, preceded by a short personal interview during which the interviewer noted which basic recycling behaviors (gathering, sorting, discarding different categories of waste, gathering information, littering) were mentioned by each respondent. These were used as starting categories for laddering. On average, 6 to 7 ladders per respondent were constructed (207 ladders in total). Responses were assigned to the consequences and value categories based on consensus among the authors. The laddering data were summarized using the Laddermap program (Gengler and Reynolds (1993)). The summary map includes all links with a frequency of occurrence of 5 or more. Individual ladders and details of the analysis are available from the first author upon request. Figure 2 presents a graphical representation of the dominant means-end chains.

B. *Basic Findings*

In Figure 2 'sorting waste' is the starting category for most ladders. During the interviews, actual starting concepts referred to sorting in

FIGURE 2
LADDERMAP summary of recycling value structures



general, and to sorted waste categories (organic waste, paper, glass, nonrecyclables, …), which were then aggregated. The map reveals the social dilemma structure of the recycling problem in mandatory programs, by reflecting the tension between individualistic and cooperative motives and behaviors.

Individualistic motives. A mandatory recycling program imposes a structural solution to the recycling problem, such that individual participants do not have to resort to cooperative values in order to participate. Complying with the rules is the personally most advantageous course of action, unless one is willing to break the rules. We find that compliance is seen as a way to save money and to avoid fines, both related to the ultimate value of self-protection. A secondary individualistic motive was the desire to protect personal health. However, personal health was typically mentioned in the context of discarding waste. Sorting and storing waste for the next collection round of the sanitary services was considered disadvantageous to personal health.

Cooperative motives are civic duty, fairness, morality and preserving the environment. Civic duty and environmental values were dominant, and were often mentioned by the same individuals. Morality and fairness were secondary. Environmental motives represent the traditional value basis for cooperation in recycling programs, and it should not be surprising that they are also found in mandatory programs. At least some individuals would also participate if participation were voluntary. From a social dilemma perspective, the environmental values constitute a typical social base for cooperation. People are motivated to cooperate because they envision the positive (environmental) consequences for the larger group, or society at large. Environmental values are clearly more prevalent in Study 2 than in Study 1. This may be because laddering requires more reflection than do depth interviews. The environmental values may spontaneously not be as salient as the 'civic' values, but can activated by deeper reflection.

Finally, most respondents mention that compliance with the sorting and recycling regulations is a matter of civic duty, and – to a lesser extent – an issue of morality. They believe that the government has good reasons to ask for their compliance, and it becomes a matter of personal honor to carry one's part of the burden these regulations bring. In addition, people want to be treated fairly, and they consider it important for themselves to play the game in a fair way. They are

motivated to obey regulations, because doing otherwise would be unfair to the other citizens. These motivations are cooperative and social in the sense that they take into account other people, but they do not necessarily imply any direct benefit to the group or society. In effect, reliance on these values to motivate cooperation reduces the social dilemma to a personal dilemma, in which immediate, materialistic personal benefits and lower costs are traded off against benefits that are located at a higher, more ethical level.

IV. DISCUSSION

Most of the available research insights on household recycling behavior were obtained from evaluation studies of voluntary programs. Our study looks explicitly at mandatory programs in which the government attempts to play a coercive role. We expected that both the consumers' experience of the programs and the motivational structure underlying their recycling behavior might be qualitatively different from what was found with voluntary programs. Our initial results confirm these expectations. At the current stage of our research, we reach two preliminary conclusions.

First, consumers in mandatory recycling programs do not seem to lack intrinsic motivation, except in situations of severe situational constraint. Obviously, their stories may be self-serving. They are based on the participants' own reflections, such that social desirability bias cannot be excluded. Still, these findings comport with surveys of (American) environmental values (see Bagozzi and Dabholkar (1995)). They are also consistent with the finding that most individuals' initial choices in social dilemma situations reflect a cooperative (rather than individualistic or competitive) perspective (Van Lange et al. (1997)). In contrast with prior research from voluntary programs, we find much a greater incidence of 'civic' values rather than of environmental values as a basis for intrinsic motivation, especially when the analysis is based on spontaneous verbalizations (Study 1). Study 2 shows that 'duty' remains important when values are generated by respondents in a more reflective mode.

Second, while our respondents comment on their recycling habits, they are sensitive to constraints due to residence and program characteristics, lack of knowledge, and perceived unfairness. Situational constraints are relatively stable over time; they still allow habit formation.

Uncertainty concerning whether one is doing things right, and feelings of being treated unfairly remain. They are used as a justification for own and other's defective behavioral episodes. Despite the potential for socially desirable answers, our respondents had no difficulty recalling and commenting upon such episodes of defection. We therefore conceptualize recycling in mandatory programs as a 'habit under strain': habitual behavior is readily interrupted by events that make people reconsider their options.

Unfairness perceptions are hard to control by social marketers and designers of recycling programs. Our results do suggest, however, that attention to the situational determinants of unfairness perceptions should be a continuing consideration. Government can take steps into improving the standardization of mandatory recycling programs. Currently, consumers hold strong prior beliefs that the system to which they are subjected compares unfavorably to that of neighboring municipalities. Officials could also allocate more resources to removing evidence of successful defection (littering), which both cursory observation ("litter attracts litter") and our qualitative data suggest to be a major driver of defection from appropriate recycling behavior.

Others before us have convincingly argued the importance of improving recycling knowledge (e.g., Pieters (1989)). Our findings emphasize that the modal consumer experiences a great deal of difficulty making sense of the different recycling rules, especially with respect to the packaging materials (plastics). A better, standardized, coding system for the nature of packaging materials should help reduce the resulting uncertainty.

Our studies have mapped the values underlying choices for the cooperative option in the social dilemma of recycling. Further experimental and survey research can use these insights to test hypotheses about the potential of these values to promote cooperative action under various levels of structural constraint and behavioral transparency. Social dilemma theory has been used as a metaphor and a model to create a typology for social marketing action (Thögersen (1996b); Wiener and Doescher (1991)), but has rarely been used as a theoretical model for guiding data collection in social marketing research. The social dilemma literature offers a rich toolbox of research paradigms and concepts that can be used to conduct such research. Located at the crossroads of psychology and economics, it should attract marketing researchers from very different orientations.

The social dilemma paradigm is ideally suited for the study of cooperative behavior when a socially desirable motivational orientation is in place (inter-individual stability), but when changeable (and sometimes manageable) situational factors explain variation in compliance (intra-individual variability). Until recently, the dominant research paradigm for recycling research was the theory of reasoned action (Fishbein and Ajzen (1975)), or one of its variants. This paradigm explains recycling behavior as a function of variability across individuals; it has not yielded much insight beyond the realization that individuals differ in environmental attitudes and values.

At the current state of the art in this domain, a social dilemma approach seems to hold more promise. Our results can be a first step in developing a motivational theory of cooperation in recycling dilemmas. An important starting point for further research is that although cooperation is mandatory, merely materialistic values do not suffice to explain why individual citizens participate in these programs. Nor do values related to social benefits like a better and cleaner environment for society at large or for later generations. Intrinsic motivation in the recycling dilemma is to a large extent constructed by reducing the social dilemma to a personal one in which duty, fairness and morality play an important role. These motivations may also play a role in other large-scale social dilemma's. Several ongoing tracks of research in our group examine when and how 'civic duty' considerations can be activated, and under which circumstances they become the major driving force for compliant behavior.

Social value orientation. In survey research we are looking at the prevalence of different types of social value orientation in society and its correlation with environmental values and environmental behavior. A general initial finding from this research is that approximately 15% of the population can be characterized as holding a highly consistent 'proself' orientation, while a majority of approximately 60% can be characterized as more or less consistent prosocials. We also found that classic social value orientation measures show sufficient reliability and predictive validity for use in social marketing research (Smeesters, Warlop and Van Avermaet (2002)).

Inducing subtle situational constraint. We are also investigating how social value orientation interacts with situational constraints on prosocial behavior. In a study using a standard resource dilemma task Smeesters, Warlop, Van Avermaet, Corneille and Yzerbyt (2003)

found that consistent proselfs contrasted their behavior to situational inducements of prosocial values, while all other participants assimilated their behavior. Generalization to more specific (e.g., environmental) contexts remains to be explored.

Mental load effects. The studies we report here reveal that household recycling – like many other prosocial acts – is embedded in ongoing daily activity, often accompanied or preceded by tasks that put a strain on available cognitive resources. At the same time, the results suggest that making prosocial decisions requires constructive goal recruitment (Huffman, Ratneshwar and Mick (2001)) that could be interfered with by current (see Shiv and Fedhorikin (1999)) or preceding (suggested by Dewitte and De Cremer (2001)) use of mental resources. One track of our current research program therefore investigates whether and how prosocial decisions are affected by different types of concurrent or precedent mental control tasks.

Suggestion of social context. Finally the current findings suggest that the social context of prosocial and environmental behavior has a significant impact on this behavior. Other people in an individual's social environment can serve both as examples to be imitated, and as observers who activate social norms and accountability considerations. Recent studies (e.g., Garcia, Weaver, Moskowitz and Darley (2002)) have shown that even subtle situational activation of 'social group' notions can induce people to act as if they were part of a group. In the household recycling context, suggestions of group membership may therefore both increase the propensity to 'free ride' on others' efforts, and increase the propensity to act according to what is believed to be the dominant behavioral norms that are attributed to the group.

By adopting a dilemma paradigm, social marketing research may also contribute to theoretical knowledge. Social marketing in social dilemma situations has been likened to "selling brotherhood" (Rothschild (1979)). However, in order to 'sell brotherhood', the 'customers' must be aware that brotherhood exists as a choice alternative. Most theoretical social dilemma research uses paradigms in which both the individual and the social pay-offs for a cooperative and a non-cooperative option are made extremely salient. Our respondents' attention to 'duty' rather than to environmental values or other 'brother's keeper' considerations, may indicate a lack of insight into the scope of the social pay-off of recycling, rather than a lack of motivation. They also suggest that defectors are not choosing

'against the environment' but that the environmental consequences of their behavior may simply not be salient or meaningful enough to them at the time of the act. Investigating the manageable causes of salience and diagnosticity of value orientations at the time of recycling acts may be of help to social marketing practitioners, as well as enrich social dilemma theory.

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